

FD-10E

SERVICE MANUAL

E Model
AEP Model



SPECIFICATIONS

TV system CCIR (B,G)
Channel coverage VHF channels 2—12
UHF channels 21—68
Antenna Telescopic Antenna
Picture tube 2-inch picture measured diagonally
Input EXT ANT (mini) jack, impedance 75Ω
Output EAR (earphone) jack, impedance 8—300Ω
Power requirement 6V DC
Battery life

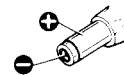
Battery		Approx. hours
Battery compartment	Sony battery SUM-3 (NS)	1.5
	Sony alkaline battery AM3 (N)	5
External battery case	Sony battery SUM-2 (NS)	6
	Sony alkaline battery AM2 (N)	14

Power consumption 1.6W (6V DC)
Dimensions Approx. 64.3×156.2×41.5mm (w/h/d)
(2⁵/₈×6¹/₄×1¹¹/₁₆ inches)
incl. projecting parts and controls
Weight Approx. 410g (14.5 oz)
incl. batteries

FEATURES


- Miniature black and white TV for portable or tabletop use.
- 4-way power sources capability for versatile use.
- Stable picture can be obtained with synchronous processor IC.
- External antenna input for better reception.
- Sound position enables listening to the TV sound only.

Note: Use only the recommended AC power adaptor or car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



Polarity of the Sony plug

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.



FLAT BLACK AND WHITE TV

SONY®



Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

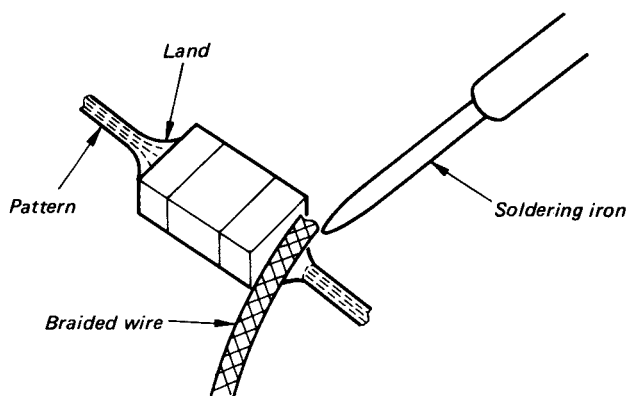
Precautions for replacement

1. Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.
2. Never re-use a disconnected chip component. Dispose of all old chip components.
3. To protect the chip component, heating time for attaching the component should be within 3 seconds.

○ Removing chip components

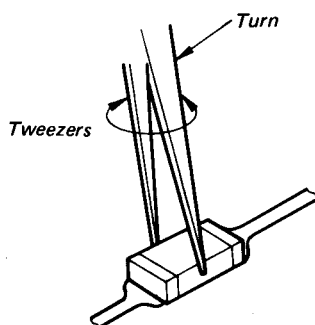
(1) Removing solder at electrode

Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off. Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ Connecting chip components

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

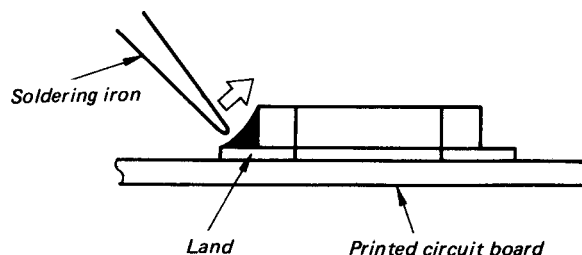
(1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



(2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



(3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

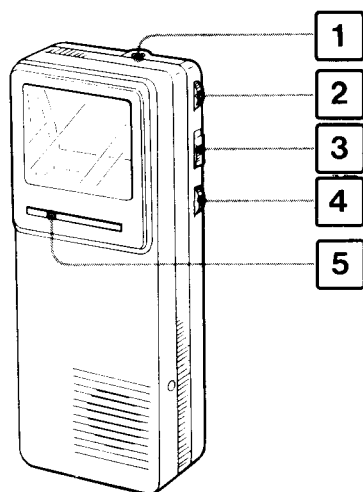
Flexible Circuit Board Repairing

1. Keep the temperature of the soldering iron at $270^{\circ} \pm 10^{\circ}\text{C}$ during repairing.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

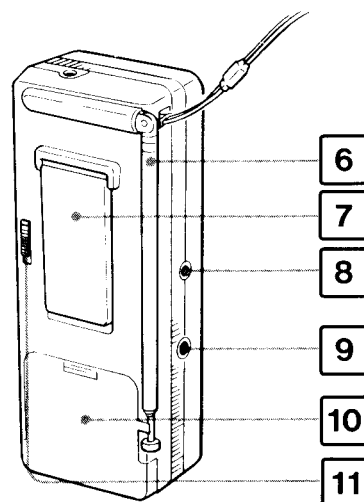
Tip of soldering iron



LOCATION OF CONTROLS



- 1 EXT ANT (external antenna) jack
- 2 VOL (volume) control
- 3 POWER switch
- 4 TUNING control
- 5 Dial scale

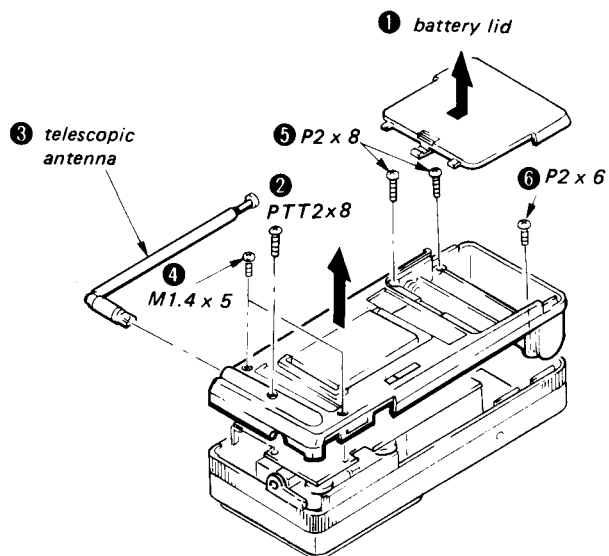


- 6 Telescopic antenna
- 7 Stand
- 8 EAR (earphone) jack
- 9 DC IN 6V (external power input) jack
- 10 Battery compartment
- 11 BAND switch

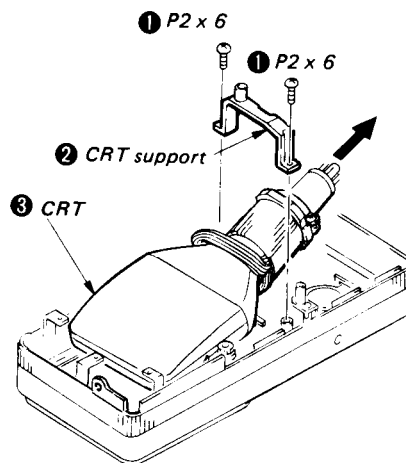
SECTION 1 DISASSEMBLY

Note: Follow the disassembly procedure in numerical order given.

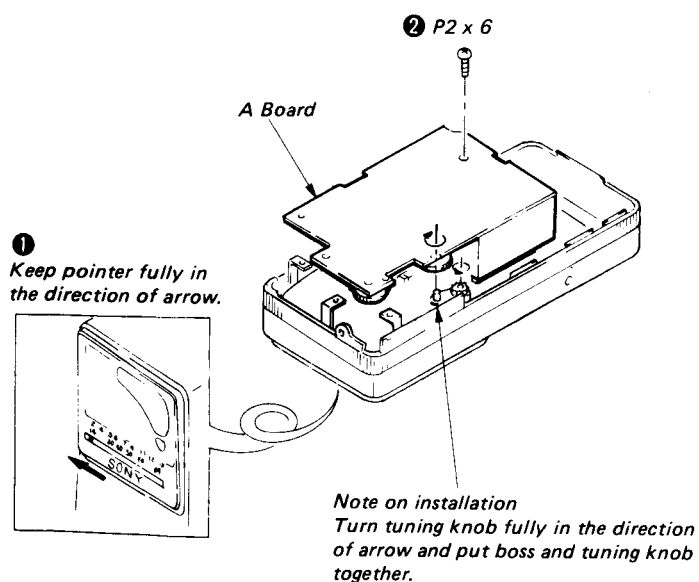
REAR CABINET



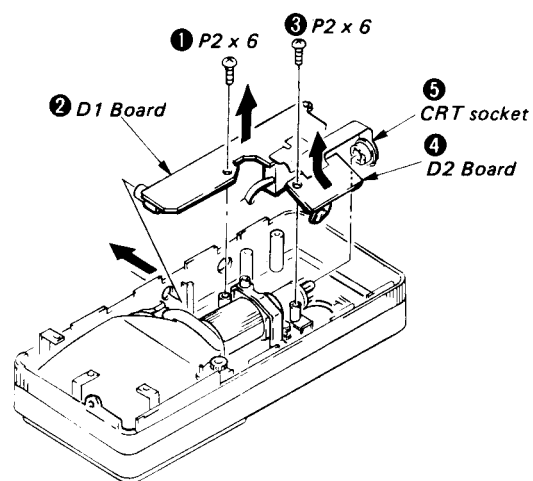
CRT



A BOARD



D1 BOARD, D2 BOARD



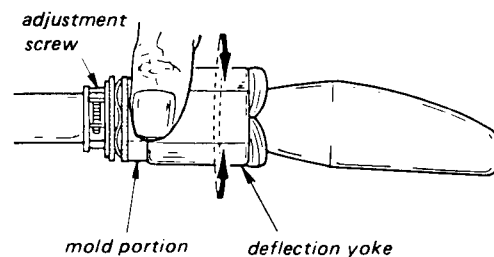
SECTION 2 ADJUSTMENTS

- Test Equipment Required
 - regulated power supply
 - color-bar/pattern generator
 - digital voltmeter
- Input Signal
a cross-hatch, a color-bar or a TV station.
- These adjustment should be performed with 6V dc unless otherwise noted.

Horizontal Alignment Adjustment

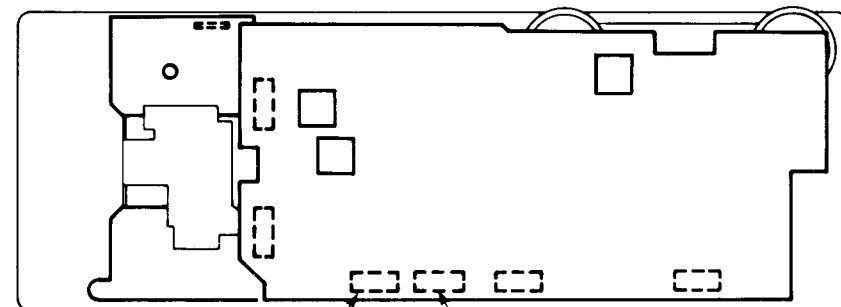
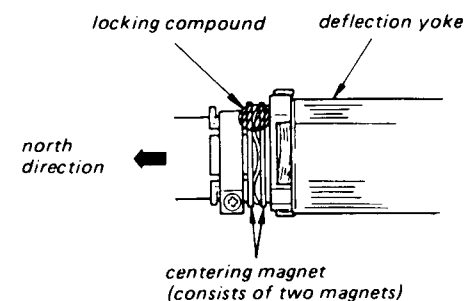
- Loosen the adjustment screw.
- Tune in a TV station and adjust deflection yoke for optimum picture.
- Tighten the screw after the adjustment.

Note: When making the adjustment, turn the deflection yoke while holding the mold portion together with yoke.



Centering Adjustment

- Turn the socket of CRT toward the north.
- Tune in a TV station.
- Adjust the centering magnet so that the picture is in the center.



Horizontal Frequency Adjustment

- Connect terminal ⑬ of IC501 to ground.
- Tune in a TV station and adjust RV501 for stable picture.

4.7V Adjustment

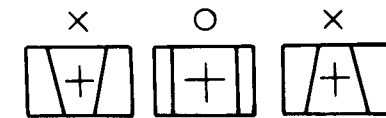
Adjust RV601 for 4.7V reading on collector of Q601.

Focus Adjustment

- Set the regulated dc power supply voltage to 4.5V.
- Adjust RV801 for the best focus at the center of the picture.

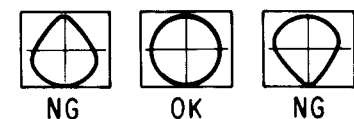
Keystone Correction (KEYST) Adjustment

- Tune in a TV station.
- Adjust RV851 for optimum picture.



V Linearity Adjustment

- Tune in a TV station.
- Adjust RV503.

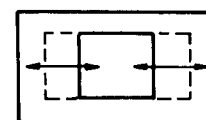


RF AGC Adjustment

- Tune in a TV station.
- Adjust RV201 so that snow noise disappears from the picture.

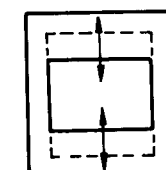
Horizontal Amplitude (H-SIZE) Adjustment

- Tune in a TV station.
- Adjust RV852 for the best horizontal amplitude.



Vertical Amplitude (V-SIZE) Adjustment

- Tune in a TV station.
- Adjust RV502 for the best vertical amplitude.

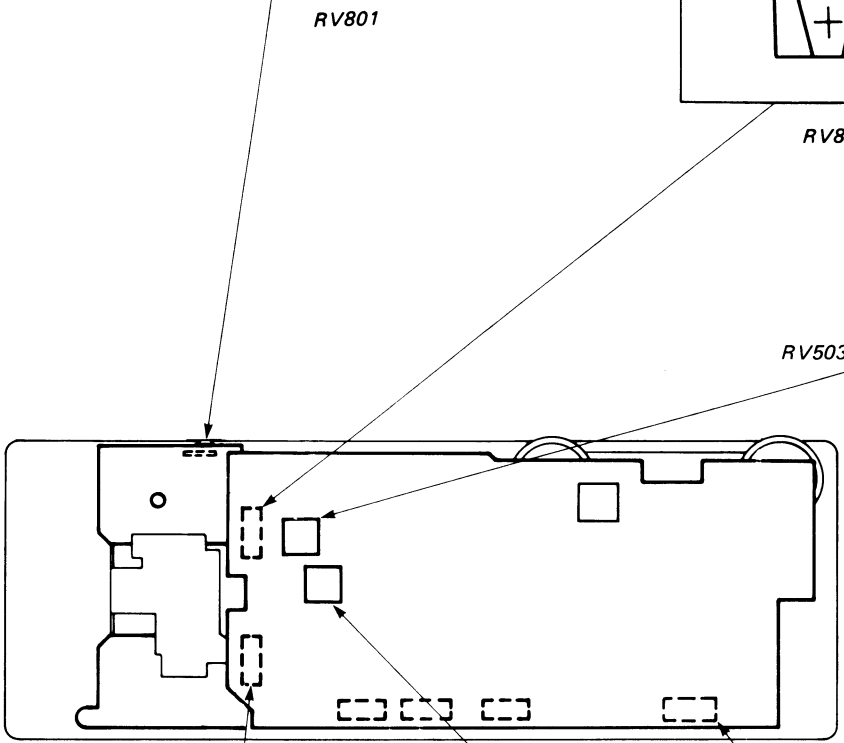
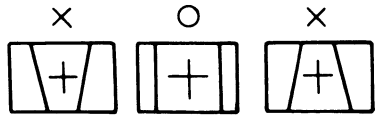


Focus Adjustment

1. Set the regulated dc power supply voltage to 4.5V.
2. Adjust RV801 for the best focus at the center of the picture.

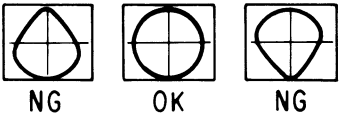
Keystone Correction (KEYST) Adjustment

1. Tune in a TV station.
2. Adjust RV851 for optimum picture.



V Linearity Adjustment

1. Tune in a TV station.
2. Adjust RV503.

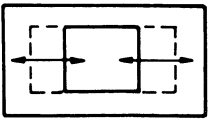


RF AGC Adjustment

1. Tune in a TV station.
2. Adjust RV201 so that snow noise disappears from the picture.

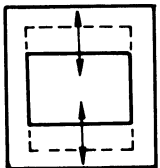
Horizontal Amplitude (H-SIZE) Adjustment

1. Tune in a TV station.
2. Adjust RV852 for the best horizontal amplitude.



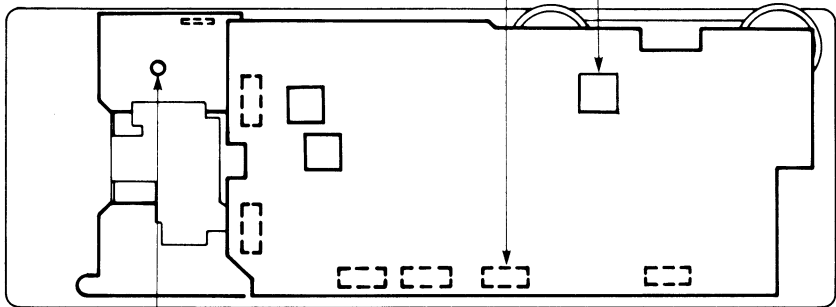
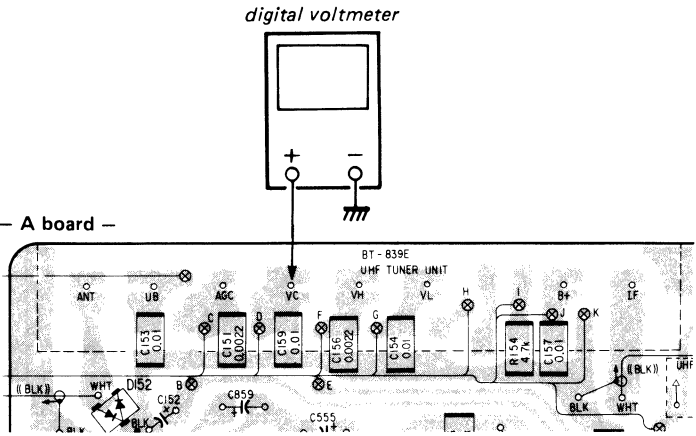
Vertical Amplitude (V-SIZE) Adjustment

1. Tune in a TV station.
2. Adjust RV502 for the best vertical amplitude.



Channel Display Adjustment

1. Set the BAND switch to UHF.
2. Turn the TUNING knob, set the dial pointer to the number "68" on dial scale.
3. Adjust RV602 for 21.2V reading on digital voltmeter.
4. Set the BAND switch to VHF and set the dial pointer to the number "5" on dial scale.
5. Adjust RV155 for 9.2V reading on digital voltmeter.

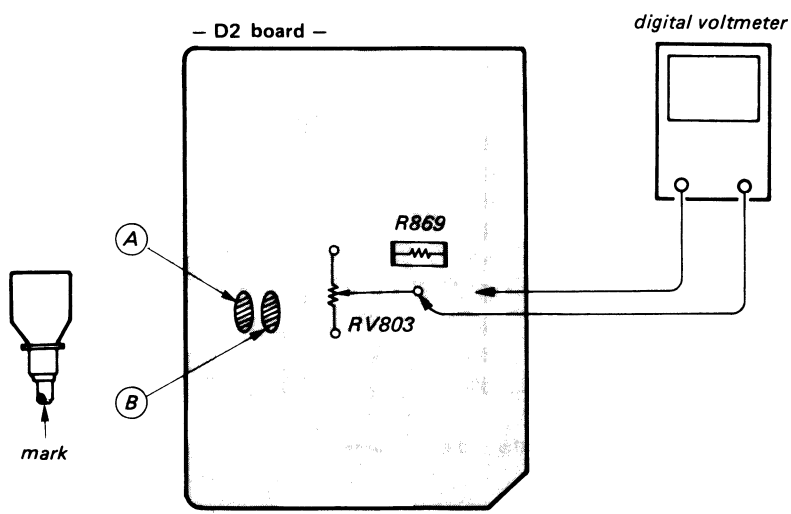


Luminance (BRT) Adjustment

1. Bridge the pattern as shown at right according to the mark on the neck of the picture tube.

	(A)	(B)
no mark	open	bridge
red mark	bridge	open

2. Connect a digital voltmeter across R869 and adjust RV803 for 24.6V reading on digital voltmeter.



SECTION 3
DIAGRAMS

3-1. MOUNTING DIAGRAM

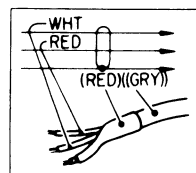
- Refer to Page 14 Semiconductor Lead Layouts

Semiconductor Location

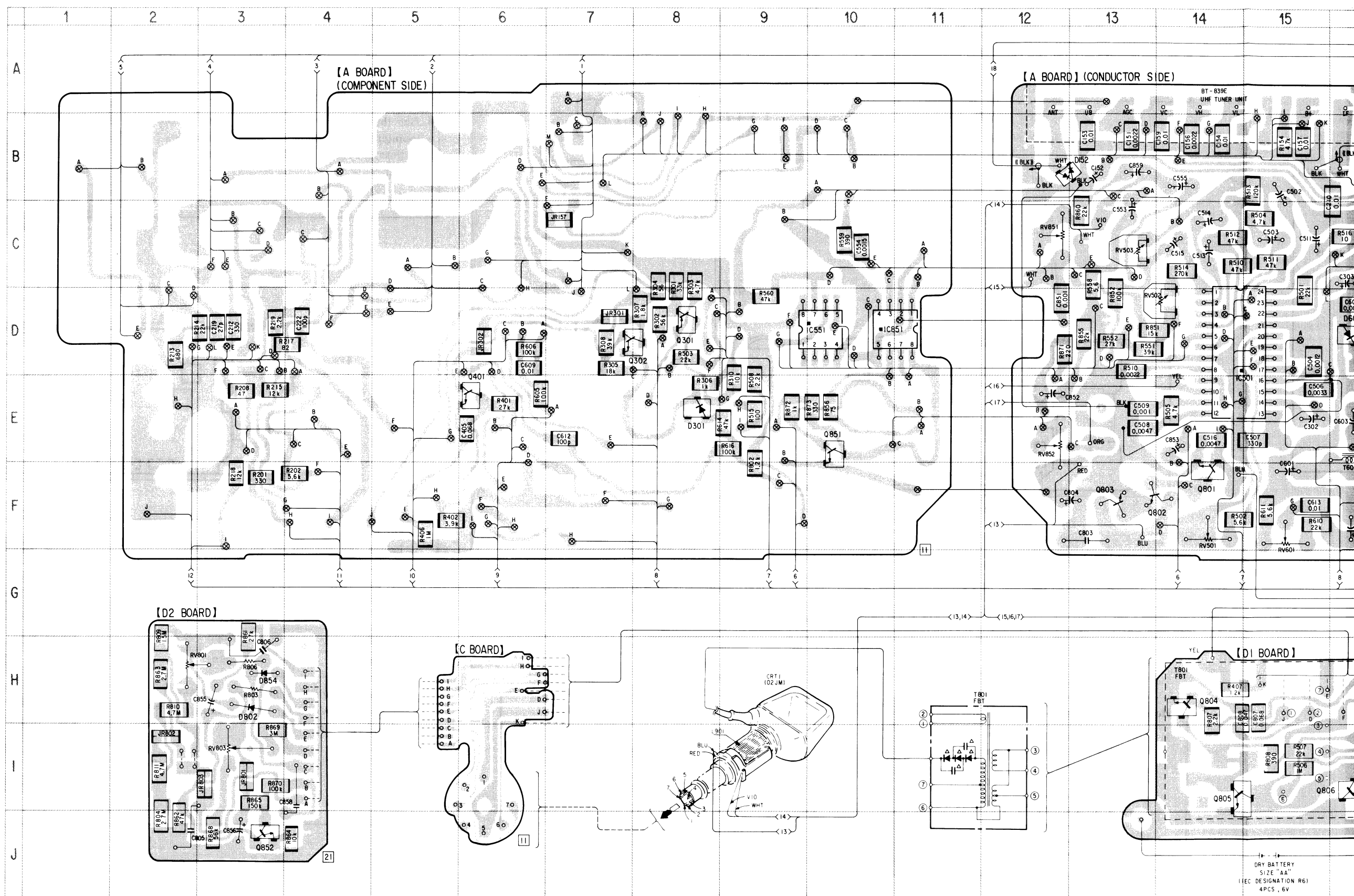
Ref. No.	Location
D151	B-17
D152	B-12
D301	E-8
D501	I-16
D603	D-16
D604	D-16
D802	H-3
D851	I-17
D854	H-3
IC201	D-20
IC451	I-19
IC501	E-14
IC551	D-10
IC601	E-17
IC851	D-10
Q153	C-18
Q201	F-19
Q301	D-8
Q302	D-7
Q401	E-6
Q601	F-16
Q602	E-16
Q801	F-14
Q802	F-13
Q803	H-14
Q804	I-14
Q805	I-16
Q806	E-10
Q851	E-10
Q852	J-3

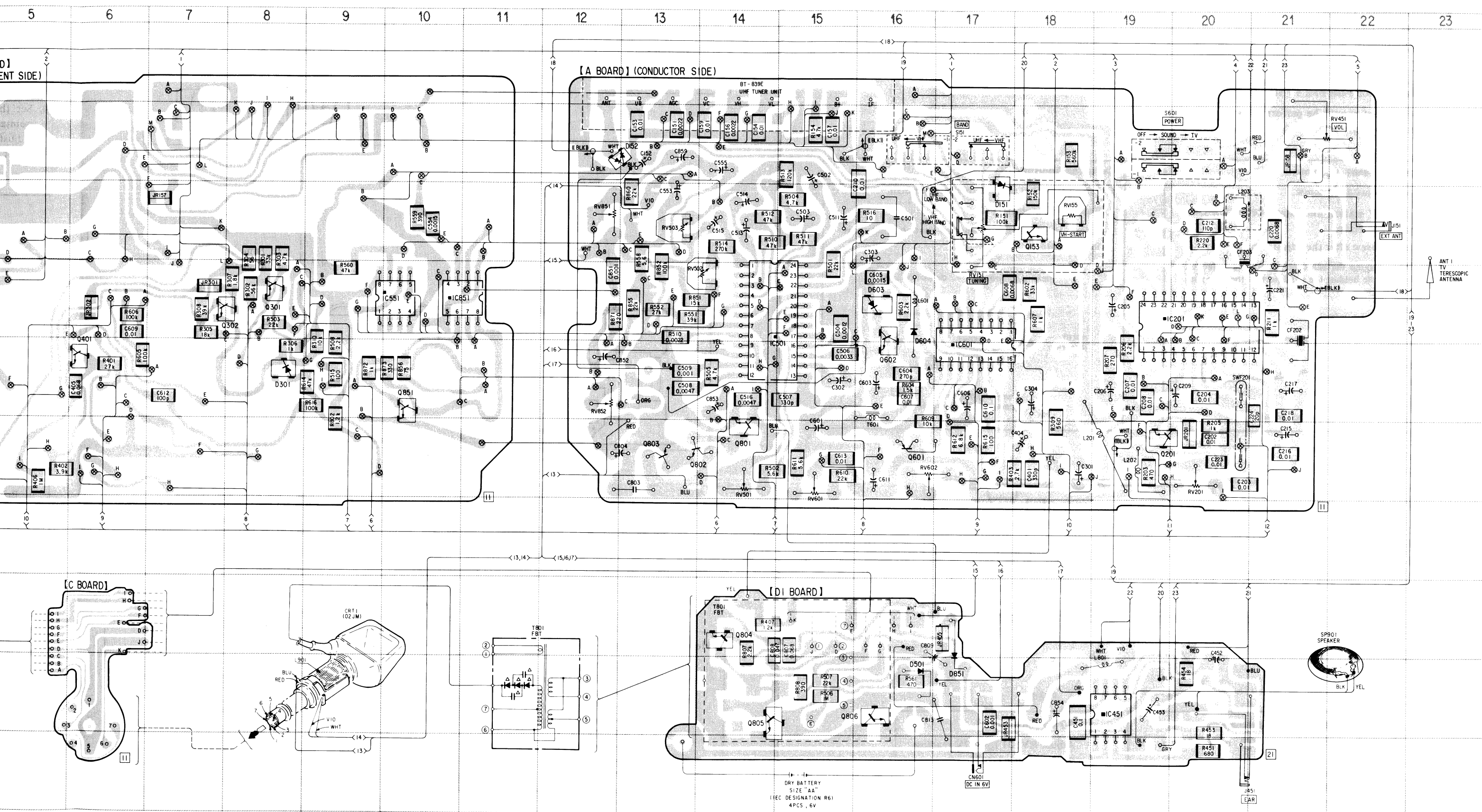
Note:

Color code of sleeving over the end of the jacket.



- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : part mounted on the conductor side.
- : indicates side identified with part number.
- ⊗ : Through hole.

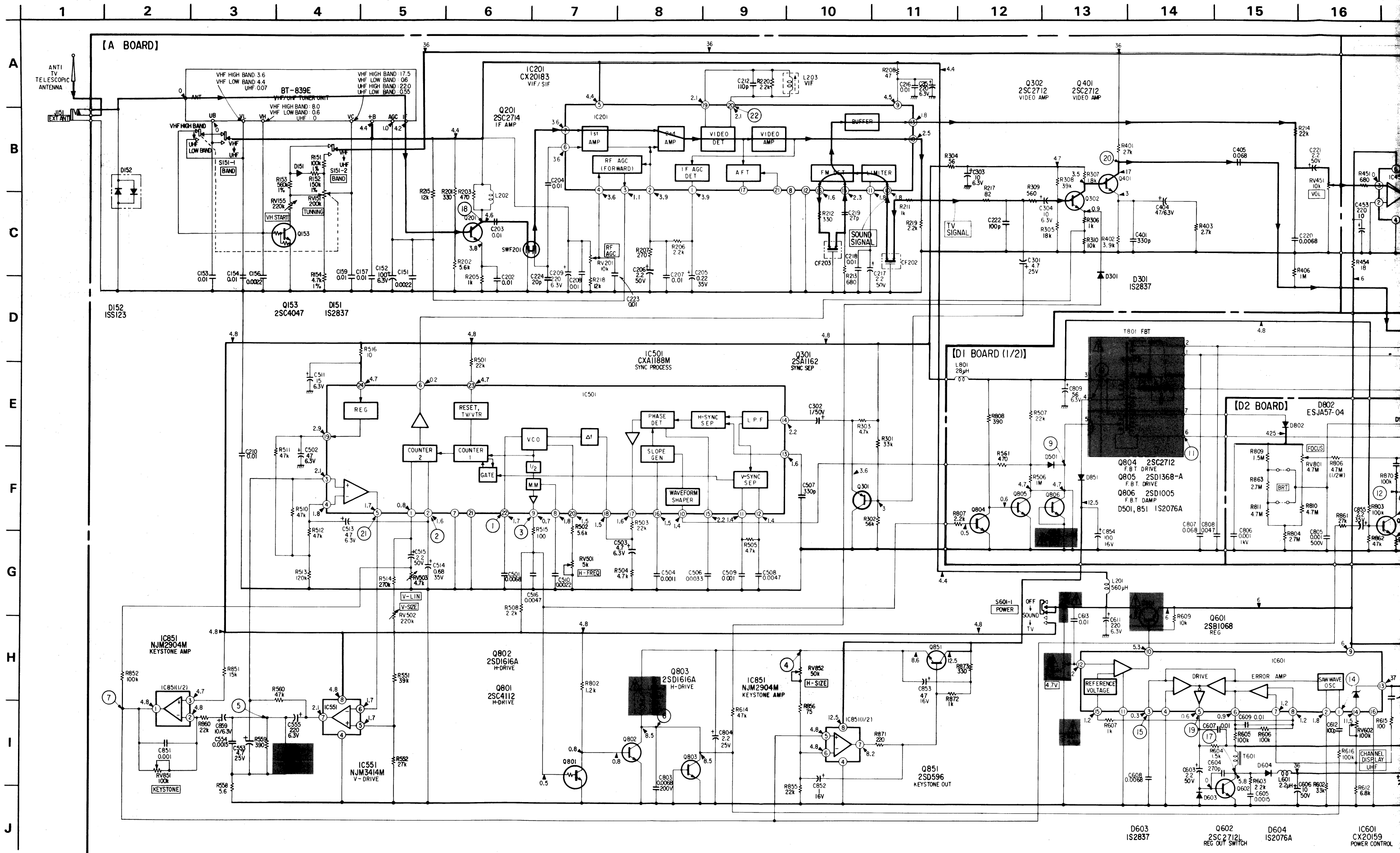




3-2. SCHEMATIC DIAGRAM

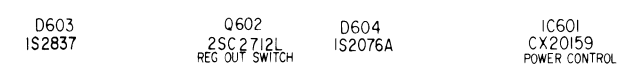
• Refer to page 14 for VHF/UHF TUNER UNIT schematic diagram and page 15 for waveforms.

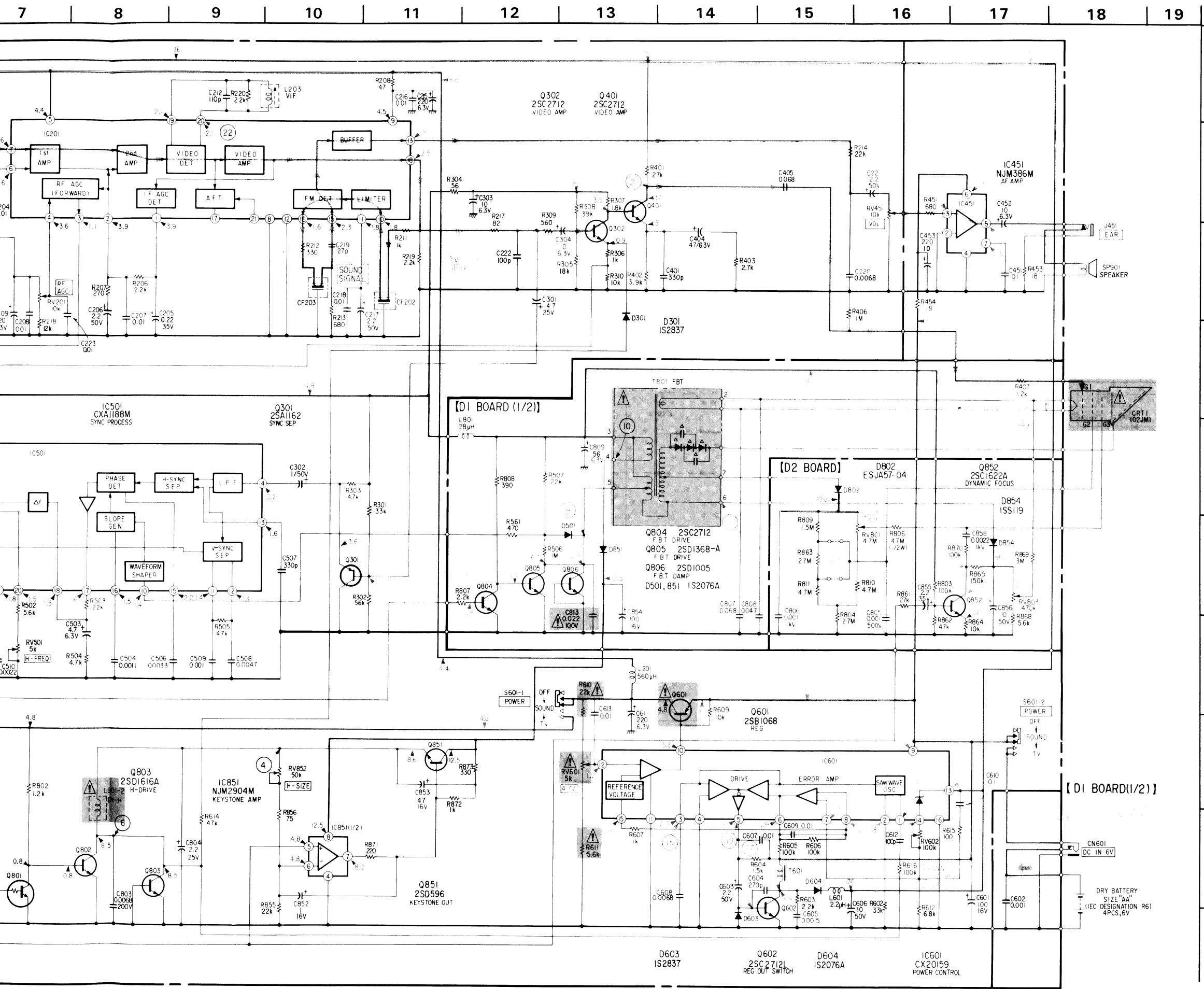
FD-10E FD-10E



FD-1 OE FD-1 OE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----





A
B
C
D
E
F
G
H
I
J

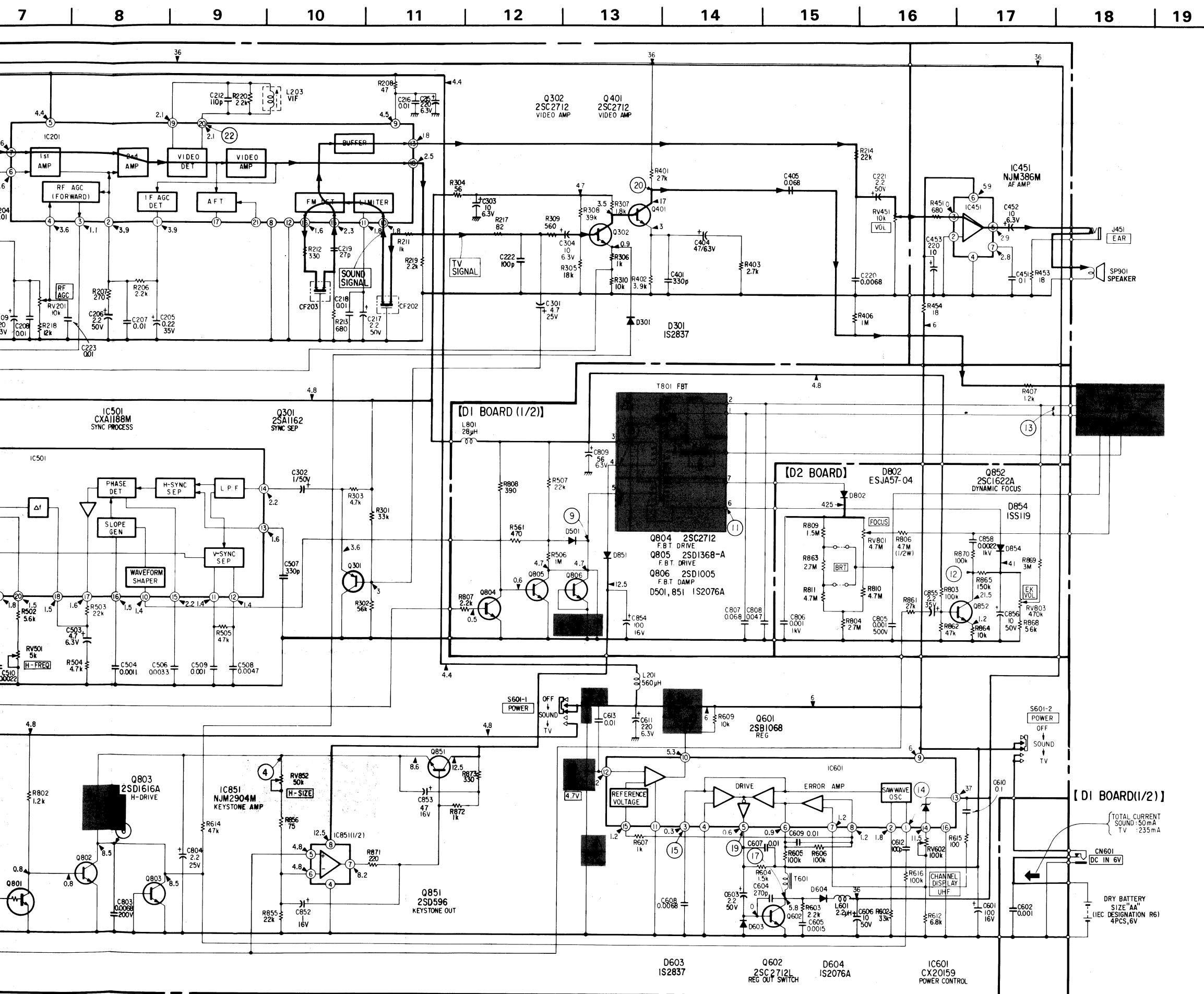
- Note:**
- All capacitors are in μF unless otherwise noted. $pF: \mu\mu F$ 50 WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{4}W$ or less unless otherwise specified.
 - Δ : internal component.
 - (1%) : indicates tolerances.

- \square : P.T. test
- \square : adjustment for repair
- Power supply is 6V DC, supplied by a 6V battery, or a 6V supply from battery.
- Voltages are indicated by the number in the circle.
- Voltage variations are indicated by the number in the circle.
- Waveform variations are indicated by the number in the circle.
- Waveform variations are indicated by the number in the circle.




• Switch

Ref. No.	Switch	Position
S151	BAND	VHF
S601	POWER	OFF


Note: The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.



Note:

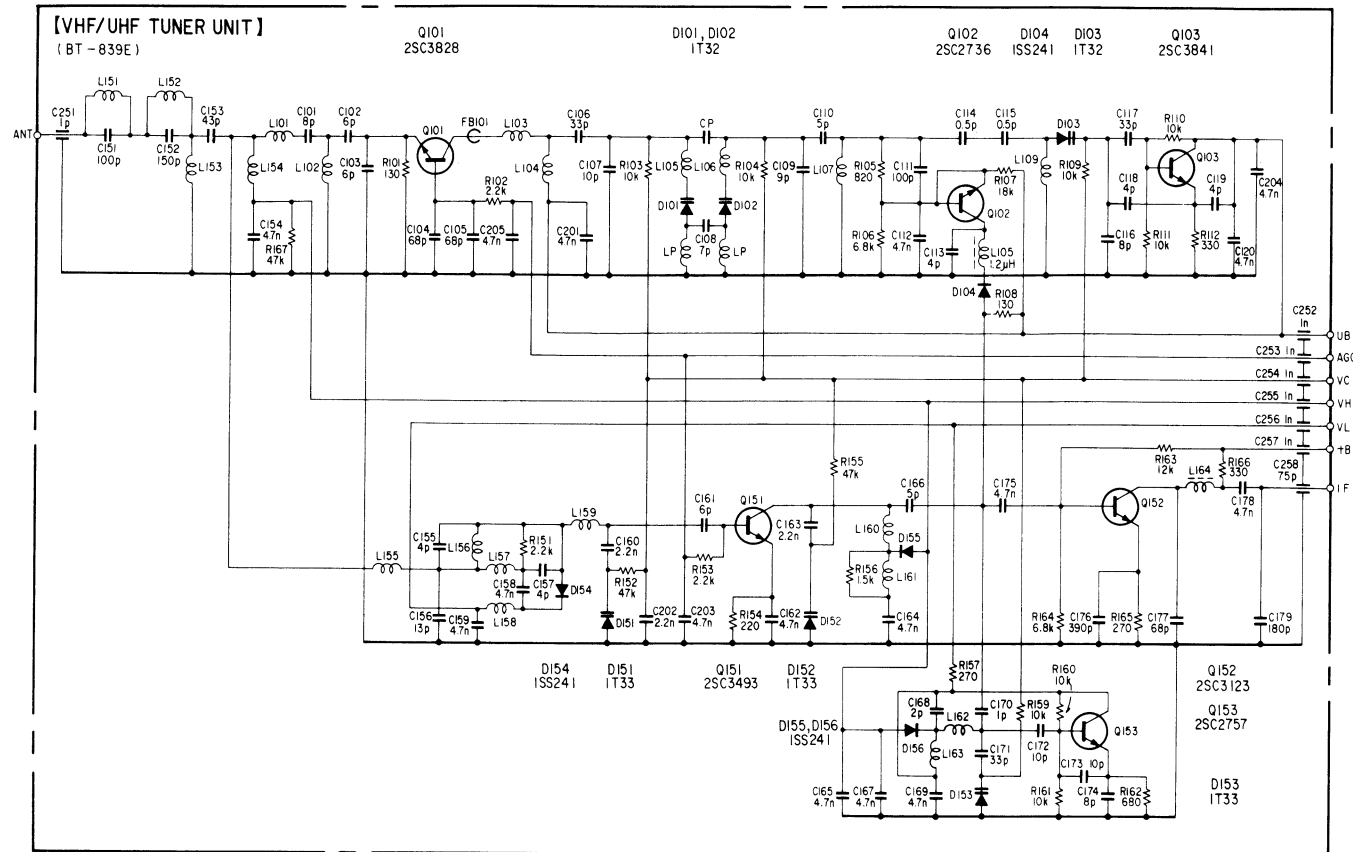
- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- Δ : internal component.
- (1%) : indicates tolerances.
-  : B+ bus.
-  : adjustment for repair.
- Power voltage is 6V DC and fed with regulated dc power supply from battery terminal.
- Voltages are dc with respect to ground no-signal (detuned) conditions with VOM (DC 50k Ω /V).
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken to ground in color-bar signal input conditions by using oscilloscope.
Voltage variations may be noted due to normal production tolerances.
- Total current is measured under no-signal conditions.
-  : signal path
- Switch

Ref. No.	Switch	Position
S151	BAND	VHF
S601	POWER	OFF

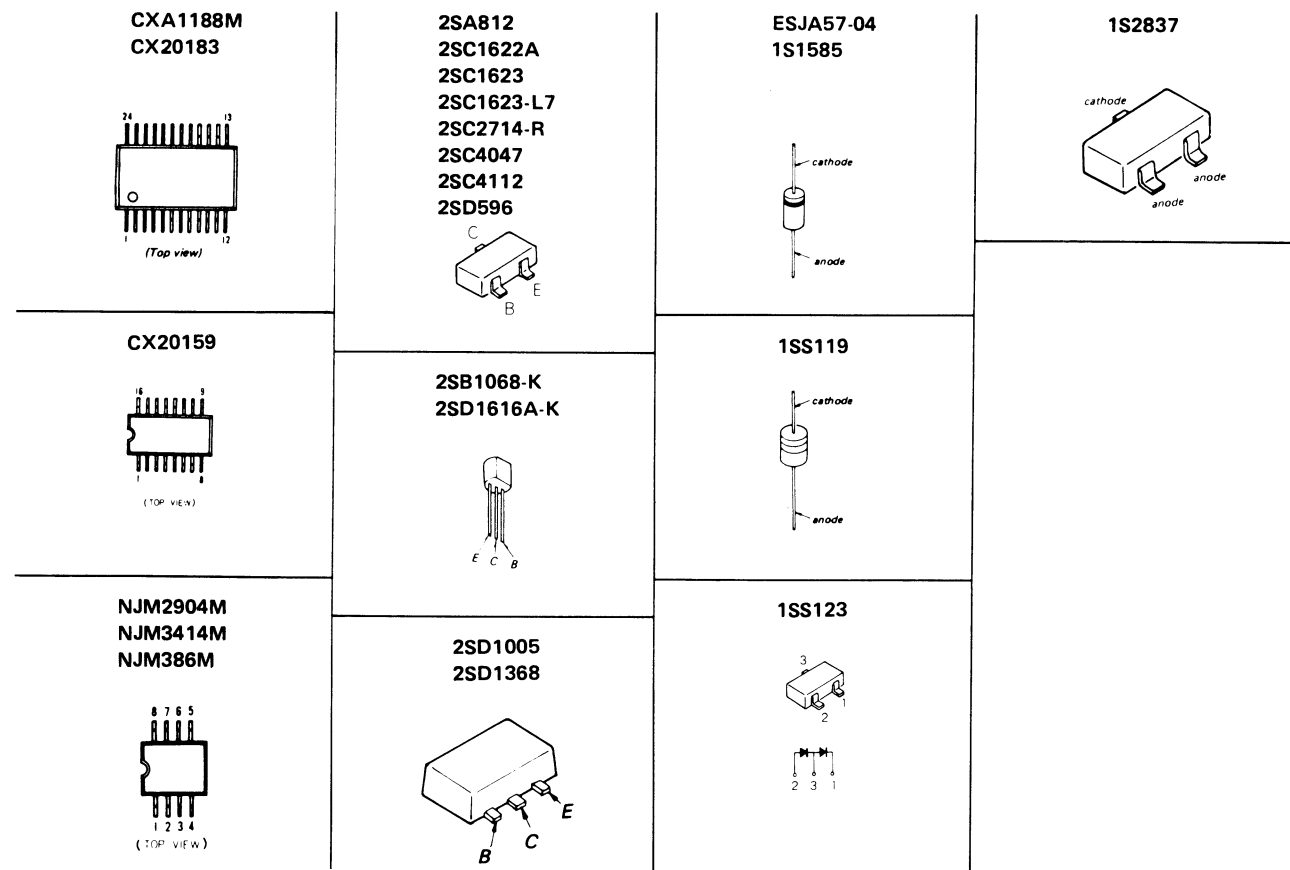
Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

The VHF/UHF tuner unit is carefully adjusted at the factory and is supplied as one whole block for replacement.

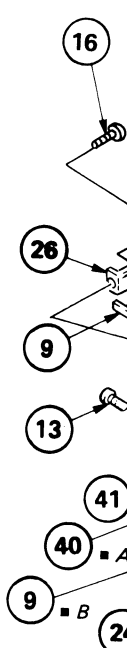
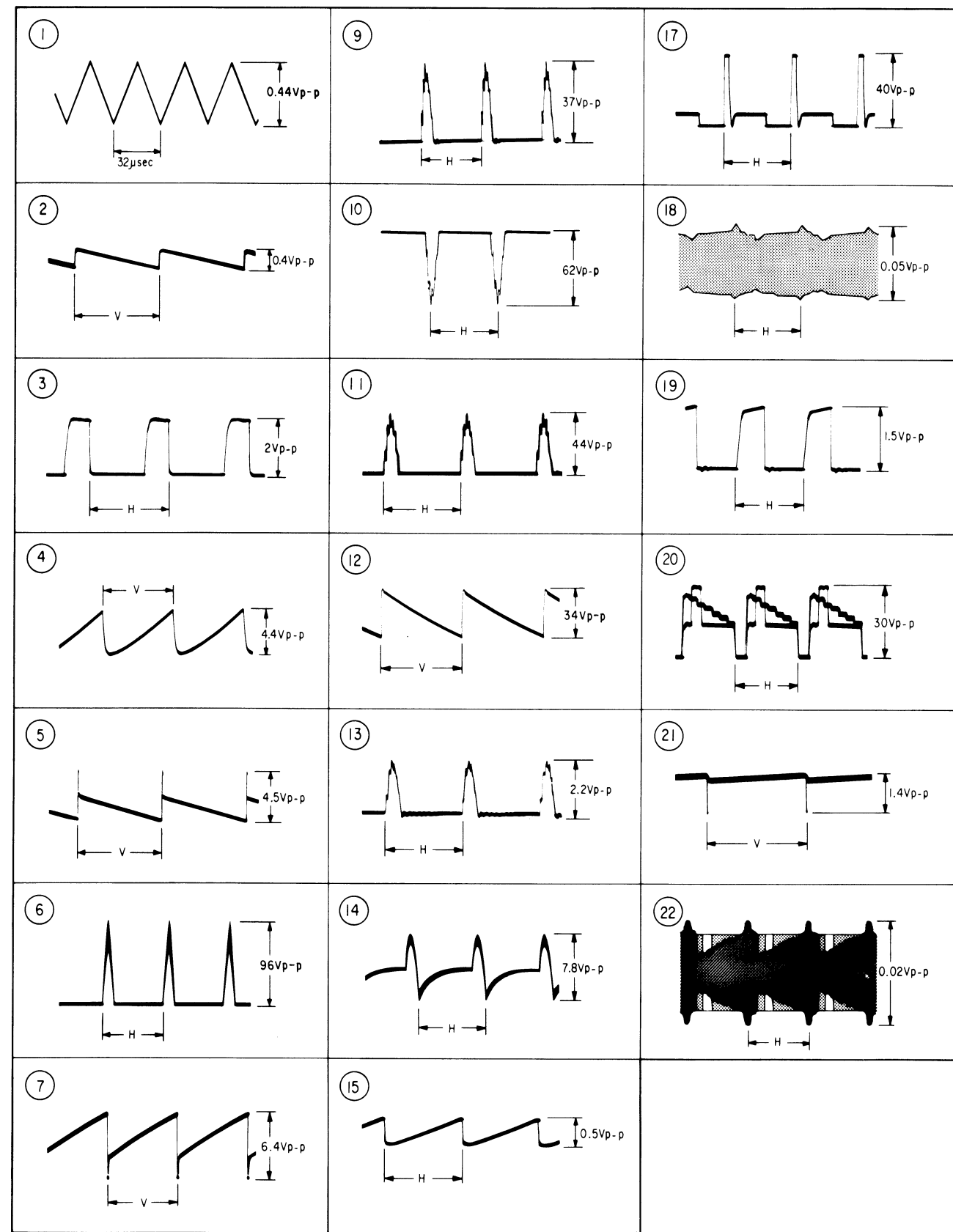
3.3. VHF/UHF TUNER UNIT SCHEMATIC DIAGRAM



• Semiconductor Lead Layouts



• Waveforms




15 (include ■ A)

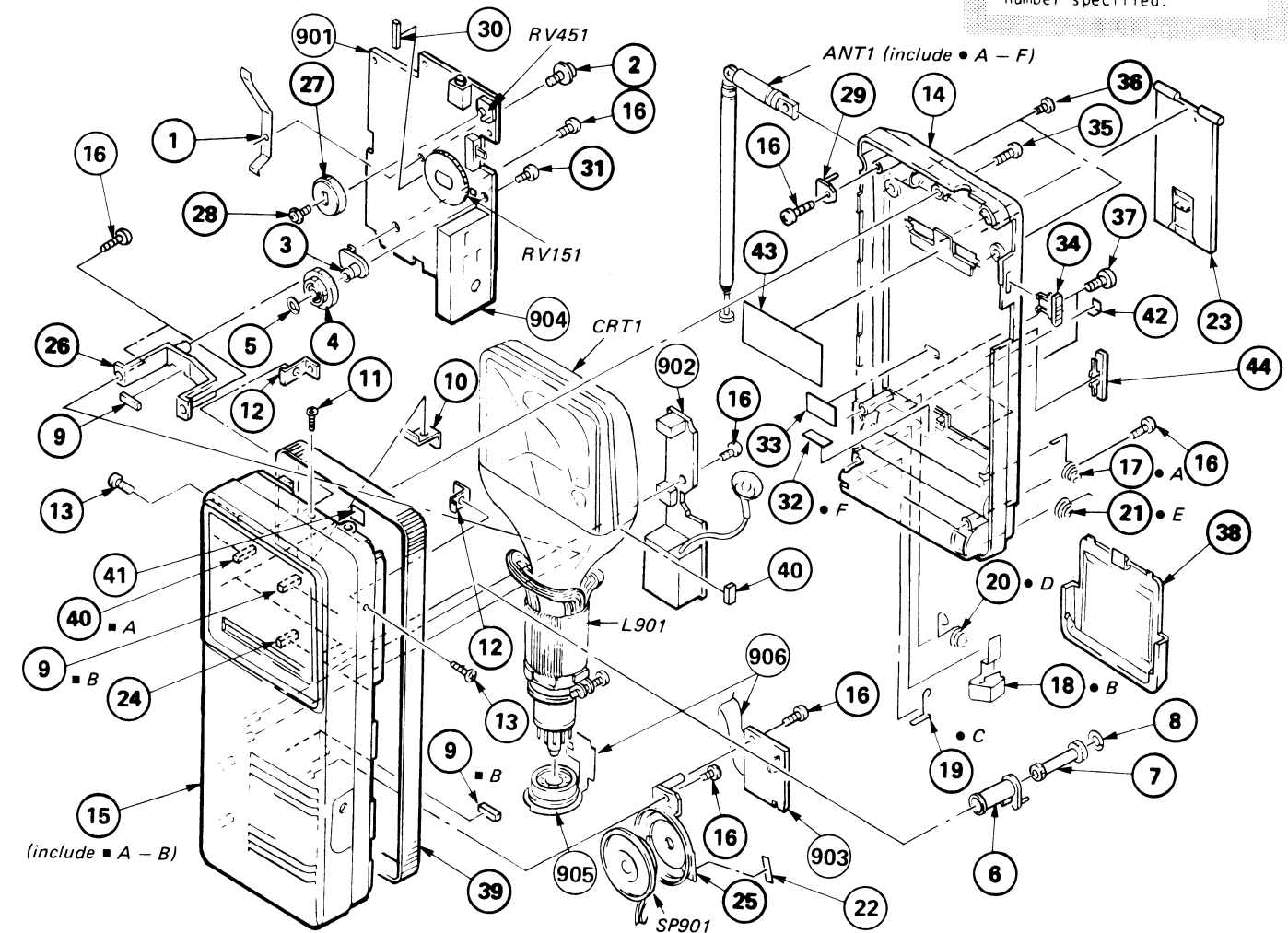
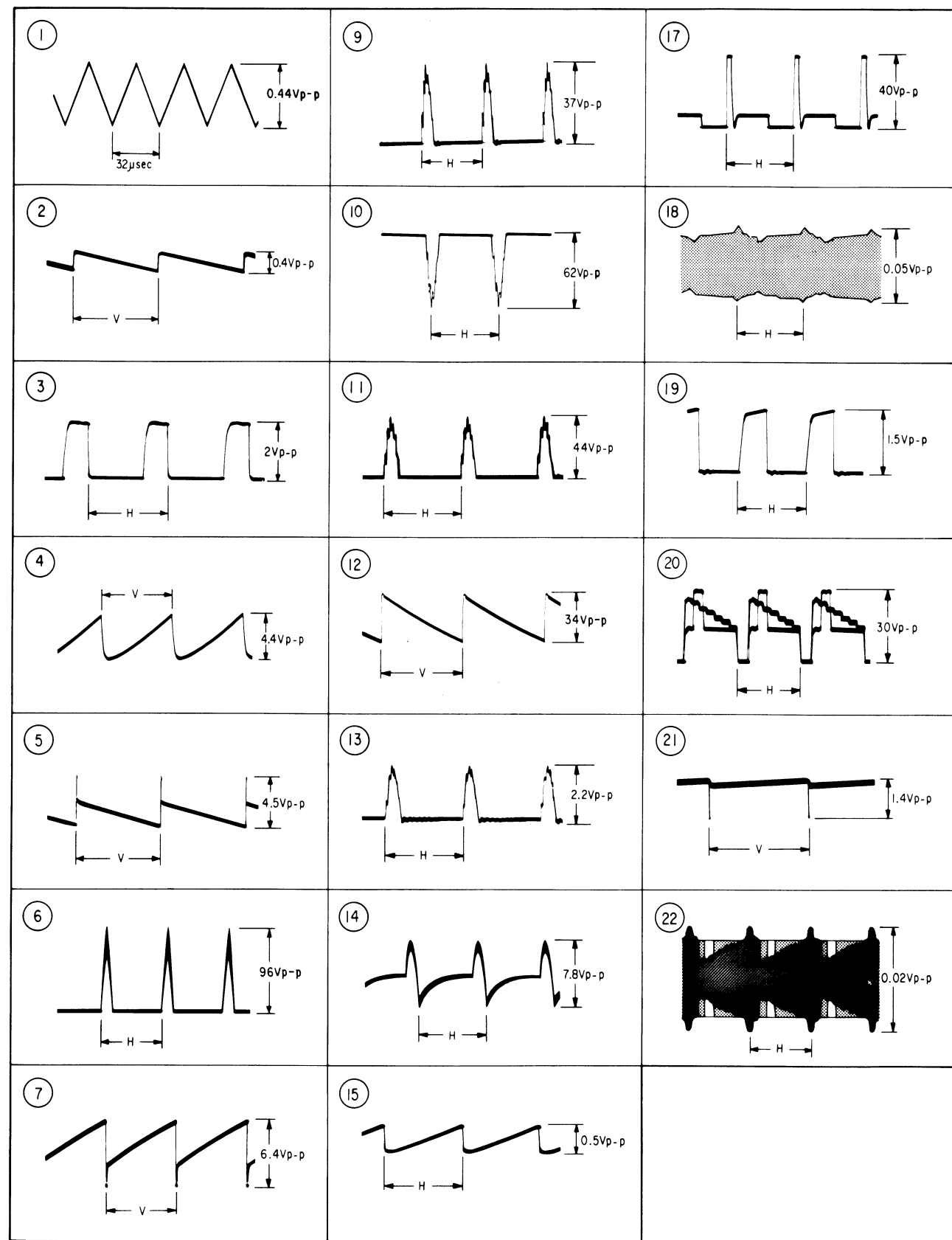
No.	Part
1	*3-32
2	3-70
3	3-32
4	3-32
5	3-32
6	*3-32
7	3-32
8	3-51
9	3-54
10	*3-32
11	7-62
12	*3-32
13	7-62
14	X-33
	X-33
	X-33
15	X-33
	X-33
	X-33
	X-33
16	7-62
17	3-56
18	3-32
19	3-32
20	3-32
21	3-32
22	3-83
23	3-31
	3-31
24	3-30
25	*3-32
26	*3-32

SECTION 4

EXPLODED VIEWS AND PARTS LIST

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

● Waveforms



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	*3-329-414-01	PLATE, CONTACT, GROUND		27	3-333-333-01	KNOB, VOLUME	
2	3-703-502-21	SCREW		28	3-703-502-41	SCREW	
3	3-329-424-01	TUNING BLOCK		29	*X-3329-402-1	BRACKET ASSY, STRAP	
4	3-329-427-01	KNOB, TUNING		30	9-911-841-XX	CUSHION	
5	3-329-411-01	WASHER, STOPPER		31	3-318-203-71	SCREW (B1.7X5), TAPPING	
6	*3-329-435-01	RETAINER, SHAFT, TUNING		32	3-831-441-11	CUSHION (B)	
7	3-329-403-01	SHAFT, TUNING		33	3-314-066-00	SHEET (B), PROTECTION	
8	3-578-223-11	WASHER, STOPPER		34	3-329-423-01	KNOB, POWER SW	
9	3-545-659-00	CUSHION, SPEAKER		35	7-685-784-04	SCREW +PTT 2X8 (S)	
10	*3-329-419-01	BRACKET, ANT		36	3-318-202-21	SCREW (M1.4X5), TAPPING	
11	7-627-553-28	SCREW, PRECISION +P 2X2.5		37	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT	
12	*3-329-416-01	PLATE, NUT		38	3-333-313-01	(SILVER)....LID, BATTERY CASE	
13	7-627-850-08	SCREW, PRECISION +P 1.4X2			3-333-313-11	(WHITE)....LID, BATTERY CASE	
14	X-3329-477-1	(SILVER)....CABINET (REAR) ASSY			3-333-313-21	(BLUE)....LID, BATTERY CASE	
	X-3329-477-2	(WHITE)....CABINET (REAR) ASSY			3-333-313-61	(GRAY)....LID, BATTERY CASE	
	X-3329-477-3	(GRAY)....CABINET (REAR) ASSY			3-329-401-01	STRIP, ORNAMENTAL	
	X-3329-477-4	(BLUE)....CABINET (REAR) ASSY		39	3-329-401-01	STRIP, ORNAMENTAL	
	X-3329-476-4	(GRAY)....CABINET (FRONT) ASSY		40	9-911-839-XX	SPACER	
	X-3329-476-5	(WHITE)....CABINET (FRONT) ASSY		41	*3-329-460-01	SPACER	
	X-3329-476-6	(SILVER)....CABINET (FRONT) ASSY		42	3-831-441-XX	PAD, RESET BUTTON (6.5X4.5X0.3)	
	X-3329-476-7	(BLUE)....CABINET (FRONT) ASSY		43	*3-314-065-00	SHEET (A), PROTECTION	
16	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT		44	3-332-211-11	KNOB, BAND SELECTION	
17	3-564-973-00	SPRING (B)		901	A-3017-169-A	PC BOARD ASSY, A	
18	3-329-431-01	BOARD, TERMINAL, BATTERY		902	*A-3017-166-A	PC BOARD ASSY, D1	
19	3-329-412-01	TERMINAL, PLUS		903	A-3017-170-A	PC BOARD ASSY, D2	
20	3-329-415-01	TERMINAL, MINUS		904	1-463-869-11	TUNER	
21	3-329-413-01	SPRING		905	1-526-736-00	SOCKET, CRT	
22	3-831-441-XX	SPACER, KNOB		906	1-616-744-11	PC BOARD, (C) FLEXIBLE	
23	3-314-029-13	(GRAY,SILVER,BLUE)....STAND		ANT1	1-501-345-11	ANTENNA, FERRITE-ROD	
	3-314-029-82	(WHITE).....STAND		CRT1	Δ.8-735-951-05	CRT 02JM(PS)	
24	3-309-009-00	SPACER, MOTOR		L901	Δ.1-451-276-11	DEFLECTION YOKE	
25	*3-329-430-01	HOLDER, SP		RV151	1-237-436-11	RES, VAR, CARBON (WITH SW) 200K (TUNING)	
26	*3-329-404-01	SUPPORT, CRT		RV451	1-230-939-11	RES, VAR, CARBON 10K (VOL)	
				SP901	1-503-540-11	SPEAKER	

SECTION 5 ELECTRICAL PARTS LIST

NOTE:

· Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

· If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:μF, PF:μμF.

RESISTORS

· All resistors are in ohms.

· F : nonflammable

COILS


· MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:

UA....: μA..., UPA....: μPA..., UPC....: μPC,

UPD....: μPD...

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	A-3017-169-A	PC BOARD ASSY, A			
902	★A-3017-166-A	PC BOARD ASSY, D1			
903	A-3017-170-A	PC BOARD ASSY, D2			
904	1-463-869-11	TUNER			
905	1-526-736-00	SOCKET, CRT			
906	1-616-744-11	PC BOARD, (C) FLEXIBLE			
ANT1	1-501-345-11	ANTENNA, FERRITE-ROD			
C151	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V	
C152	1-124-225-00	ELECT 100MF	20%	6.3V	
C153	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C154	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C156	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V	
C157	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C159	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C202	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C203	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C204	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C205	1-131-343-00	TANTALUM 0.22MF	10%	35V	
C206	1-124-257-00	ELECT 2.2MF	20%	50V	
C207	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C208	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C209	1-124-635-00	ELECT 220MF	20%	6.3V	
C210	1-163-059-00	CERAMIC CHIP 0.01MF		50V	
C212	1-163-118-00	CERAMIC CHIP 110PF	5%	50V	
C215	1-124-635-00	ELECT 220MF	20%	6.3V	
C216	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C217	1-123-612-00	ELECT 2.2MF	20%	50V	
C218	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C219	1-163-103-00	CERAMIC CHIP 27PF	5%	50V	
C220	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V	
C221	1-124-257-00	ELECT 2.2MF	20%	50V	
C222	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C223	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C224	1-163-100-00	CERAMIC CHIP 20PF	5%	50V	
C301	1-124-245-00	ELECT 4.7MF	20%	25V	
C302	1-124-255-00	ELECT 1MF	20%	50V	
C303	1-131-383-00	TANTALUM 10MF	10%	6.3V	
C304	1-124-462-00	ELECT 10MF	20%	6.3V	
C401	1-163-129-00	CERAMIC CHIP 330PF	10%	50V	
C404	1-124-224-00	ELECT 47MF	20%	6.3V	
C405	1-163-036-00	CERAMIC CHIP 0.068MF		50V	
C451	1-163-077-00	CERAMIC CHIP 0.1MF		50V	
C452	1-124-462-00	ELECT 10MF	20%	6.3V	
C453	1-124-444-00	ELECT 220MF	20%	10V	
C501	1-130-481-00	MYLAR 0.0068MF	5%	50V	
C502	1-124-224-00	ELECT 47MF	20%	6.3V	

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C503	1-131-375-00	TANTALUM 4.7MF	10%	6.3V	
C504	1-163-207-00	CERAMIC CHIP 0.0012MF	5%	50V	
C506	1-163-015-00	CERAMIC CHIP 0.0033MF	10%	50V	
C507	1-163-129-00	CERAMIC CHIP 330PF	10%	50V	
C508	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V	
C509	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C510	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V	
C511	1-127-483-00	ELECT(SOLID) 15MF	20%	6.3V	
C513	1-131-375-00	TANTALUM 4.7MF	10%	6.3V	
C514	1-131-346-00	TANTALUM 0.68MF	10%	35V	
C515	1-124-257-00	ELECT 2.2MF	20%	50V	
C516	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V	
C553	1-124-245-00	ELECT 4.7MF	20%	25V	
C554	1-163-145-00	CERAMIC CHIP 0.0015MF		50V	
C555	1-124-635-00	ELECT 220MF	20%	6.3V	
C601	1-124-168-00	ELECT 100MF	20%	16V	
C602	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C603	1-124-257-00	ELECT 2.2MF	20%	50V	
C604	1-163-127-00	CERAMIC CHIP 270PF	5%	50V	
C605	1-163-145-00	CERAMIC CHIP 0.0015MF	10%	50V	
C606	1-124-261-00	ELECT 10MF	20%	50V	
C607	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C608	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V	
C609	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C610	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C611	1-124-635-00	ELECT 220MF	20%	6.3V	
C612	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C613	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C803	1-106-363-00	MYLAR 0.0068MF	5%	200V	
C804	1-127-508-00	ELECT(SOLID) 2.2MF	20%	25V	
C805	1-102-038-00	CERAMIC 0.001MF	99%	500V	
C806	1-162-697-11	CERAMIC 0.001MF		1KV	
C807	1-163-036-00	CERAMIC CHIP 0.068MF		50V	
C808	1-163-035-00	CERAMIC CHIP 0.047MF		50V	
C809	1-126-123-41	ELECT 56MF	20%	6.3V	
C813	★ 1-106-375-12	MYLAR 0.022MF	5%	100V	
C851	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C852	1-131-347-00	TANTALUM 1MF	20%	16V	
C853	1-124-236-00	ELECT 47MF	20%	16V	
C854	1-124-445-00	ELECT 100MF	20%	16V	
C855	1-124-257-00	ELECT 2.2MF	20%	35V	
C856	1-124-261-00	ELECT 10MF	20%	50V	
C858	1-162-147-00	CERAMIC 0.0022MF		1KV	
C859	1-131-383-00	TANTALUM 10MF	10%	6.3V	
CF202	1-567-566-11	FILTER, CERAMIC			
CF203	1-567-567-11	FILTER, CERAMIC			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
CN601	1-562-961-11	JACK (DC IN 6V)			
CRT1	△ 8-735-951-05	CRT 02JM (PS)			
D151	8-719-100-05	DIODE 1S2837			
D152	8-719-101-23	DIODE 1SS123			
D301	8-719-100-05	DIODE 1S2837			
D501	8-719-815-85	DIODE 1S1585			
D603	8-719-100-05	DIODE 1S2837			
D604	8-719-815-85	DIODE 1S1585			
D802	8-719-903-28	DIODE ESJA57-04			
D851	8-719-815-85	DIODE 1S1585			
D854	8-719-911-19	DIODE 1SS119			
IC201	8-759-602-99	IC CX20183			
IC451	8-759-700-50	IC NJM386M			
IC501	8-752-031-99	IC CXA1188M			
IC551	8-759-701-24	IC NJM3414M			
IC601	8-759-802-39	IC CX20159			
IC851	8-759-701-01	IC NJM2904M			
J151	1-507-814-21	JACK, ANTENNA			
J451	1-563-315-11	JACK (EAR)			
JR157	1-216-295-00	METAL CHIP	0	5%	1/10W
JR201	1-216-295-00	METAL CHIP	0	5%	1/10W
JR301	1-216-295-00	METAL CHIP	0	5%	1/10W
JR302	1-216-295-00	METAL CHIP	0	5%	1/10W
JR453	1-216-296-00	METAL CHIP	0	5%	1/8W
JR455	1-216-295-00	METAL CHIP	0	5%	1/10W
JR801	1-216-295-00	METAL CHIP	0	5%	1/10W
JR802	1-216-295-00	METAL CHIP	0	5%	1/10W
JR803	1-216-295-00	METAL CHIP	0	5%	1/10W
L201	1-408-098-00	MICRO INDUCTOR 560UH			
L202	*1-422-258-11	COIL, AIR-CORE			
L203	1-404-633-11	COIL, VIF DETECTOR			
L601	1-410-320-11	MICRO INDUCTOR 2.2UH			
L801	1-421-549-00	COIL, CHOKE 28UH			
L901	△ 1-451-276-11	DEFLECTION YOKE			
Q153	8-729-805-94	TRANSISTOR 2SC4047			
Q201	8-729-200-85	TRANSISTOR 2SC2714R			
Q301	8-729-100-76	TRANSISTOR 2SA812			
Q302	8-729-100-66	TRANSISTOR 2SC1623			
Q401	8-729-100-66	TRANSISTOR 2SC1623			
Q601	△ 8-729-116-57	TRANSISTOR 2SB1068-K			
Q602	8-729-100-66	TRANSISTOR 2SC1623			
Q801	8-729-806-99	TRANSISTOR 2SC4112			
Q802	8-729-111-29	TRANSISTOR 2SD1616A-K			
Q803	8-729-111-29	TRANSISTOR 2SD1616A-K			
Q804	8-729-100-67	TRANSISTOR 2SC1623-L7			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q805	8-729-301-25	TRANSISTOR 2SD1368			
Q806	8-729-103-72	TRANSISTOR 2SD1005			
Q851	8-729-159-64	TRANSISTOR 2SD596			
Q852	8-729-103-16	TRANSISTOR 2SC1622A			
R151	1-216-097-00	METAL CHIP	100K	1%	1/10W
R152	1-216-101-00	METAL CHIP	150K	1%	1/10W
R153	1-216-740-91	METAL CHIP	560K	1%	1/10W
R154	1-218-132-91	METAL CHIP	4.7K	1%	1/10W
R201	1-216-037-00	METAL CHIP	330	5%	1/10W
R202	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R203	1-216-041-00	METAL CHIP	470	5%	1/10W
R205	1-216-049-00	METAL CHIP	1K	5%	1/10W
R206	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R207	1-216-035-00	METAL CHIP	270	5%	1/10W
R208	1-216-017-00	METAL CHIP	47	5%	1/10W
R211	1-216-049-00	METAL CHIP	1K	5%	1/10W
R212	1-216-037-00	METAL CHIP	330	5%	1/10W
R213	1-216-045-00	METAL CHIP	680	5%	1/10W
R214	1-216-081-00	METAL CHIP	22K	5%	1/10W
R215	1-216-075-00	METAL CHIP	12K	5%	1/10W
R217	1-216-023-00	METAL CHIP	82	5%	1/10W
R218	1-216-075-00	METAL CHIP	12K	5%	1/10W
R219	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R220	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R301	1-216-085-00	METAL CHIP	33K	5%	1/10W
R302	1-216-091-00	METAL CHIP	56K	5%	1/10W
R303	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R304	1-216-019-00	METAL CHIP	56	5%	1/10W
R305	1-216-079-00	METAL CHIP	18K	5%	1/10W
R306	1-216-049-00	METAL CHIP	1K	5%	1/10W
R307	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R308	1-216-748-11	METAL CHIP	39K	5%	1/10W
R309	1-216-043-00	METAL CHIP	560	5%	1/10W
R310	1-216-073-00	METAL CHIP	10K	5%	1/10W
R401	1-216-083-00	METAL CHIP	27K	5%	1/10W
R402	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R403	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R406	1-216-121-00	METAL CHIP	1M	5%	1/10W
R407	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R451	1-216-045-00	METAL CHIP	680	5%	1/10W
R453	1-216-007-00	METAL CHIP	18	5%	1/10W
R454	1-216-007-00	METAL CHIP	18	5%	1/10W
R501	1-216-081-00	METAL CHIP	22K	5%	1/10W
R502	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R503	1-216-081-00	METAL CHIP	22K	5%	1/10W
R504	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS


Ref.No.	Part No.	Description			
R505	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R506	1-216-121-00	METAL CHIP	1M	5%	1/10W
R507	1-216-081-00	METAL CHIP	22K	5%	1/10W
R508	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R510	1-216-089-00	METAL CHIP	47K	5%	1/10W
R511	1-216-089-00	METAL CHIP	47K	5%	1/10W
R512	1-216-089-00	METAL CHIP	47K	5%	1/10W
R513	1-216-099-00	METAL CHIP	120K	5%	1/10W
R514	1-216-105-00	METAL CHIP	220K	5%	1/10W
R515	1-216-025-00	METAL CHIP	100	5%	1/10W
R516	1-216-001-00	METAL CHIP	10	5%	1/10W
R551	1-216-748-11	METAL CHIP	39K	5%	1/10W
R552	1-216-083-00	METAL CHIP	27K	5%	1/10W
R558	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R559	1-216-039-00	METAL CHIP	390	5%	1/10W
R560	1-216-089-00	METAL CHIP	47K	5%	1/10W
R561	1-216-041-00	METAL CHIP	470	5%	1/10W
R602	1-216-085-00	METAL CHIP	33K	5%	1/10W
R603	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R604	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R605	1-216-097-00	METAL CHIP	100K	5%	1/10W
R606	1-216-097-00	METAL CHIP	100K	5%	1/10W
R607	1-216-049-00	METAL CHIP	1K	5%	1/10W
R609	1-216-073-00	METAL CHIP	10K	5%	1/10W
R610	1-216-081-00	METAL CHIP	22K	5%	1/10W
R611	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R612	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R614	1-216-089-00	METAL CHIP	47K	5%	1/10W
R615	1-216-025-00	METAL CHIP	100	5%	1/10W
R616	1-216-097-00	METAL CHIP	100K	5%	1/10W
R802	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R803	1-249-441-11	CARBON	100K	5%	1/4W
R804	1-216-280-00	METAL CHIP	2.7M	5%	1/8W
R806	1-202-727-00	SOLID	4.7M	10%	1/2W
R807	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R808	1-216-039-00	METAL CHIP	390	5%	1/10W
R809	1-216-125-00	METAL CHIP	1.5M	5%	1/10W
R810	1-216-286-00	METAL CHIP	4.7M	5%	1/8W
R811	1-216-286-00	METAL CHIP	4.7M	5%	1/8W
R851	1-216-077-00	METAL CHIP	15K	5%	1/10W
R852	1-216-097-00	METAL CHIP	100K	5%	1/10W
R855	1-216-081-00	METAL CHIP	22K	5%	1/10W
R856	1-216-022-00	METAL CHIP	75	5%	1/10W
R860	1-216-081-00	METAL CHIP	22K	5%	1/10W
R861	1-216-083-00	METAL CHIP	27K	5%	1/10W
R862	1-216-089-00	METAL CHIP	47K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R863	1-216-131-11	METAL CHIP	2.7M	5%	1/10W
R864	1-216-073-00	METAL CHIP	10K	5%	1/10W
R865	1-216-101-00	METAL CHIP	150K	5%	1/10W
R868	1-216-240-00	METAL CHIP	56K	5%	1/8W
R869	1-216-132-11	METAL CHIP	3M	5%	1/10W
R870	1-216-097-00	METAL CHIP	100K	5%	1/10W
R871	1-216-033-00	METAL CHIP	220	5%	1/10W
R872	1-216-049-00	METAL CHIP	1K	5%	1/10W
R873	1-216-037-00	METAL CHIP	330	5%	1/10W
RV151	1-237-436-11	RES, VAR, CARBON (WITH SW)200K(TUNING)			
RV155	1-230-429-11	RES, ADJ, METAL GLAZE 220K			
RV201	1-237-278-11	RES, ADJ, CARBON 10K			
RV451	1-230-939-11	RES, VAR, CARBON 10K (VOL)			
RV501	1-237-287-11	RES, ADJ, CARBON 5K			
RV502	1-230-429-11	RES, ADJ, METAL GLAZE 220K			
RV503	1-228-357-00	RES, ADJ, METAL GLAZE 4.7K			
RV601	1-237-287-11	RES, ADJ, CARBON 5K			
RV602	1-237-289-11	RES, ADJ, CARBON 100K			
RV801	1-230-954-11	RES, ADJ (HIGH VOLTAGE) 4.7M			
RV803	1-228-999-00	RES, ADJ, CARBON 470K			
RV851	1-237-289-11	RES, ADJ, CARBON 100K			
RV852	1-237-288-11	RES, ADJ, CARBON 50K			
S151	1-570-377-11	SWITCH, SLIDE (BAND)			
S601	1-554-598-00	SWITCH, SLIDE (POWER)			
SP901	1-503-540-11	SPEAKER			
SWF201	1-567-565-11	FILTER, CERAMIC			
T601	1-410-352-11	MICRO INDUCTOR			
T801	1-439-402-11	TRANSFORMER ASSY, FLYBACK			

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-463-692-11	(E)...ADAPTOR, AC (AC-650W)
3-329-450-01	STRAP
3-329-496-01	SPACER
3-329-499-01	CUSHION
3-333-352-01	(AEP)...INDIVIDUAL CARTON
3-333-355-01	(E).....INDIVIDUAL CARTON
3-333-303-01	BAG, PROTECTION
3-701-622-00	BAG, POLYETHYLENE
3-703-913-01	(GRAY).....LABEL, COLOR
3-703-916-01	(BLUE).....LABEL, COLOR
3-703-921-01	(SILVER).....LABEL, COLOR
3-703-923-01	(WHITE).....LABEL, COLOR
3-765-217-41	MANUAL, INSTRUCTION
3-765-217-51	MANUAL, INSTRUCTION

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

TROUBLESHOOTING GUIDE

The unit does not operate.

- Connect the AC power adaptor or the car battery cord firmly (on AC or car battery operation).
- Replace batteries.
- Install the batteries with correct polarity.

No picture (screen not lit), but good sounds.

- Set the POWER switch to TV.
- Replace batteries

Herringbone pattern, double images, stripes, too indistinct, etc.

- Readjust the tuning.
- Adjust the telescopic antenna.

Dotted line or stripes.

- Often caused by interference from car ignition, neon signs, hair dryers, electric-razors, etc. Move the unit to another spot.
- Adjust the telescopic antenna.

No sound from the speaker.

- Turn up the VOL control.